TEL/LOGIC INC.
Reply Comments on 2 GHz Licensed PCS

Interest: Prospective new service provider

Band plan:

- Two licensees with 30-40 MHz each (2-3).
- The quality of competition, not quantity, should guide the number of new licensees, since PCS will compete with LEC services, cellular services, ESMR, advanced paging, LEO systems, and new mobile data services and since more than two competitors would reduce the scarcity value of licenses, making financing more difficult (2-3).

Amount of spectrum per licensed system:

- Co-existence requires allocations of at least 30 MHz, and preferably 40 MHz, since allocations of 20 MHz or less would be wiped out by a single OFS link and fairness dictates allocating more than cellular's 25 MHz (3-4).

Cellular carrier participation:

- If the Commission adopts 30-40 MHz blocks, cellular carriers should not be permitted to participate (7).
- OPP's analysis shows economic synergy between cellular and PCS; however, the conclusion should be that a cellular/PCS prohibition is needed to prevent non-competitive cross-subsidized behavior and illustrates the need for cost-based access to cellular networks (7).
- Should the Commission seek a compromise, it should allocate such providers only 10 MHz; place a sunset provision on the cellular/PCS ban; or allow limited geographic access immediately, and review broader participation at a later date (7).

Local exchange carrier participation:

- If the Commission adopts 30-40 MHz blocks, LECs should not be permitted to participate (7).
- OPP's analysis shows economic synergy between LEC and PCS; however, the conclusion should be that a LEC/PCS prohibition is needed to prevent non-competitive cross-subsidized behavior and illustrates the need for cost-based access to LEC networks (7).
- Should the Commission seek a compromise, it should allocate such providers only 10 MHz; place a sunset provision on the LEC/PCS ban; allow limited geographic access immediately,

and review broader participation at a later date; or permit smaller independent LECs to provide PCS in smaller cities and rural areas as part of a national consortium (7).

Licensing policies:

- Supports MCI's consortium plan, since consortia pool talents and resources of a diverse group of large and small telecommunications players; promote consistency of technology and nationwide standards; and effectively limit the applicant pool to a manageable size (5).

- Tel/Logic has already formed a consortium with a number of other licensees for the purpose of initiating a nationwide PCS test (5).

- A consortium could be either a single licensee, or a group of companies each holding licenses for difference areas -- the difference being primarily the desired autonomy of participants (5).

- Tel/Logic previously advocated reserving a "PCS Developer's" block for experimental licensees and pioneer's preference applicants, which should be carried over into a consortium licensing scheme; i.e., a PCS Developer Consortium Block (5-6).

TELMARC TELECOMMUNICATIONS INC.
Reply Comments on 2 GHz Licensed PCS

Interest: None identified

Service areas:

- Notes its earlier support for national coalition in reply comments on pioneer preference filing; supports national consortium approach along lines proposed by MCI as natural progression of its current position and that of several other experimental license holders. (pp. 1-6).

- Supports MCI proposal with a few minor modifications: (1) consortium should be formed on open and equitable basis and no one party should have dominant ownership position to avoid chilling effect on other parties; and (2) manager should be selected for professional and technical expertise. (p. 7).

Other:

- Takes exception to conclusions reached in OPP report concerning issues of scale and scope economies within the PCS market. (p. 7).

- Specifically, notes that CATV infrastructure has severe drawbacks, and that LEC infrastructure is, even at marginal rates, more costly than new technology. (pp. 7-10).

- States that the use of alternative capital elements provided by third parties on a fair and equitable basis results in loss of economies of scope in the capital base; moreover, there is no commonality of function among expense elements of PCS service so as to make for economies of scope in these elements. (pp. 10-12).

- States that policy implications of its findings are: (1) LEC disaggregation of switching, interconnection, and retail functions is necessary for adequate competition in PCS market; and (2) national PCS consortium is possible; moreover, lack of scope opens market to many competitors. Also asserts that there is no compelling economic argument that national manager is necessary to ensure efficiency. (pp. 12-13).

TELOCATOR
Reply Comments on 2 GHz Licensed PCS

Interest: Personal communications industry association.

Band plan:

- Entire 1850-1990 MHz band should be allocated for PCS and any spectrum not immediately made available should be held in reserve to meet future PCS needs. (pp. 5-7).

Service areas:

- National and LATA-based service areas are not in the public interest. (pp. 10-11).

Cellular carrier participation:

- Opposes any prohibition on the participation of cellular carriers in PCS. (p. 8).

Local exchange carrier participation:

- Set-asides for LECs are not warranted. LECs, however, should not be excluded from participating in PCS on the same basis as any other applicant. (pp. 9-10).

Licensing policies:

- 10 year license terms are appropriate for PCS. (pp. 11-12).

- FCC should adopt stringent lottery reforms to deter speculation for 2 GHz PCS licenses, including firm financial commitments, high filing fees, and construction deadlines. (pp. 12-13). In light of these reforms, pre-lottery settlements with disclosure should be allowed. (p. 14).

Regulatory status:

- FCC's regulatory framework for PCS should rely on competition rather than comprehensive regulation. (p. 14).

- FCC should ensure a level playing field exists for all PCS providers. (p. 15).

- PCS carriers should have a federally protected right of interconnection with the PSTN. (pp. 15-16).

Technical standards:

- Technical standards should be left to industry standards groups. (pp. 16-17).
- Interoperability and intersystem roaming should not be mandated at this time. (pp. 17-18). Telocator's Joint Experts' Meeting (JEM) demonstrates the industry's ability to develop these standards. (p. 18).
- TSB10-E is an appropriate starting point for addressing interference protection for fixed microwave systems, but the standards are too conservative and should be revised to emphasize "availability" rather than "fade margin." (pp. 18-19).
- Standards bodies' RF exposure guidelines should serve as the only basis for PCS power and height limitations. (p. 20).
- An FCC-mandated technical advisory committee is not necessary at this time. (pp. 20-21).

Other:

- Believes that PCS defines a well known set of proposed offerings and that spectrum allocations are justified. (pp. 2-5).
- Appendix A: PCS Standards Requirements Document: Service Description Standards.
- Appendix B: Report of the Joint Experts' Meeting on PCS Air Interface Standards.

TEXAS STATEWIDE TELEPHONE COOPERATIVE
Reply Comments on 2 GHz Licensed PCS

Interest: Statewide organization representing all telephone cooperatives and other rural independent telephone exchange companies in Texas

Service areas:

- States that licensing areas no larger than existing MSA/RSA configurations should be adopted; if national licensing plan is adopted, needs of rural America must be directly addressed at application phase, and no award of a national license should be made in absence of commitment by licensee to provide PCS to rural areas. (pp. 3, 6-7).

Local exchange carrier participation:

- States that rural telephone service providers must not be excluded from the opportunity to provide PCS within or outside their service areas; arbitrary and capricious to exclude entities most willing to provide PCS service on basis of speculative anticompetitive concerns. (pp. 3-4).

- Supports short-term frequency reservation for LEC provision of PCS within rural areas. (pp. 3-4).

Cellular carrier participation:

- Asserts that rural cellular service providers should be allowed to provide PCS within and outside their service areas. (p. 3).

Licensing policies:

- Regardless of geographic scope of licenses, opposes auctions; currently unauthorized and would benefit deep pockets to detriment of committed service providers. (pp. 7-8).

TIME WARNER TELECOMMUNICATIONS
Reply Comments on 2 GHz Licensed PCS

Interest: Prospective new service provider

Band plan: Supports 2 competitors with 40 MHz each.

- Arguments that duopolies are bad do not recognize that PCS will compete with numerous existing services (16-17).
- Arguments based on creating "niche" services cloak commenters' desire to avoid creating viable competition to cellular; PCS should not be relegated to a second class service (17-18).
- Arguments based on creating more entry opportunities are only superficially appealing, given that viable services will not result (18-19).

Amount of spectrum per licensed system:

- Telocator's study on spectrum requirements, supporting at least 40 MHz allocations, is the only comprehensive study to date that has received full industry backing (3-4).
- OPP's study relies on faulty assumptions including the number of Erlangs generated by subscribers (0.03 instead of 0.25); the frequency re-use factor (seven, like today's cellular systems, instead of between 12 and 24); and the channel bandwidth (25 kHz instead of 100 kHz) (5-7).
- Telocator's estimates rely on clear spectrum; since new providers will be forced to share with public safety users indefinitely and with many microwave users initially when new providers are most economically vulnerable, relatively larger allocations are needed (7-8).
- 40 MHz allocations also facilitate coordination and relocation of existing users since they correspond with existing use patterns (9-10).
- Arguments made by potential competitors of PCS for smaller than 40 MHz allocations are unsupported, anticompetitive, and rely on erroneous assumptions that PCS will resemble cellular (12-15).

Service areas:

- TWT supports licensing one system nationwide and the other using MTAs (19-20).
- Consolidation is affecting all mobile services and will affect PCS (20).

- Nationwide licenses do not affect diversity if coupled with regional licenses; provide incentives to invest in innovative technology; create beneficial de facto standards; render new niche services economically viable; promote regional and local service to maximize revenues (in any event, the benefits of localism have not been proven); stimulate development of rural areas because licensing will consume less time, concerns about interoperability and roaming will not arise, economies of scale will render new expansion feasible, and local providers can be franchised; attract financing; limit transaction costs; and will not provide PCS with a competitive advantage over cellular since cellular carriers are banding together to provide nationwide service (19-32).

Cellular carrier participation:

- Cellular carriers should be barred except for nationwide licensing and in cases of minimal overlaps (34-35).

Local exchange carrier participation:

- LECs should not be barred, except where cellular holdings would otherwise disqualify them (35).

- A set-aside for LECs is not warranted (35).

TRX TRANSPORTATION TELEPHONE COMPANY
Reply Comments on 2 GHz Licensed PCS

Interest: Developer of a PCS service and pioneer's preference applicant.

Other:

- Argues that the Nationwide Transportation Radiotelephone Service it developed satisfies the Commission's criteria for a pioneer's preference and that, in tentatively denying TRX's request for a preference, the Commission misapplied those criteria.

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UNITED STATES INDEPENDENT PERSONAL COMMUNICATIONS ASSOCIATION
Reply Comments on 2 GHz Licensed PCS

Interest: Trade association representing the personal communications industry.

Licensing policies:

- Opposes auctions and comparative hearings as these selection methods would close the door to the entrepreneurial interests that have historically proven among the industry's most innovative providers (1, 4-5).

- Favors post card lotteries, along with the imposition of strict entry criteria and trafficking limitations, as the best means of minimizing the Commission's obligations while preserving spectrum for the sincere entrepreneur. Following the lottery, the winner would have 48 hours to submit its full application, including a market-specific financial commitment letter, a detailed engineering analysis, and a detailed business plan (5-6).

UNITED STATES TELEPHONE ASSOCIATION
Reply Comments on 2 GHz Licensed PCS

Interest: Trade association of exchange carrier industry

Service areas:

- The majority of commenters support the use of MSAs/RSAs as they will permit a greater number of service providers, enhance service and product innovation, and broaden the availability of PCS (15-16).

Local exchange carrier participation:

- A wide range of commenters (including the FCC's Office of Plans and Policy) representing diverse interests support full eligibility for LECs both inside and outside their service areas (3-6).

- Restrictions on LEC participation in PCS will not further the Commission's goals and are unnecessary. Such restrictions could preclude the valuable contributions of these highly experienced entities and restrict PCS availability in areas where competition is less likely to develop. Such restrictions would also preclude the economies of scope to be derived from integrating PCS with LECs' existing infrastructures (6-7, 9-12).

- A LEC's cellular holdings should not affect its ability to obtain a PCS license in its service area. Most LECs do not have more than a minority interest in a cellular system and accordingly do not have access to cellular spectrum to provide PCS services. Moreover, current capacity and technical constraints will not permit the provision of a wide range of PCS services within cellular spectrum (7-9).

- Sufficient safeguards are in place to assuage any speculation regarding anti-competitive concerns (12-13).

- There is no basis for limiting LECs to 10 MHz of PCS spectrum. The OPP Paper confirms that 10 MHz is not sufficient to provide full-feature PCS (13-15).

Licensing policies:

- To encourage early deployment of PCS in non-metropolitan areas, the Commission should reserve one block of spectrum in each RSA for LECs to provide PCS to their service area (16-17).

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U S WEST, INC.
Reply Comments on 2 GHz Licensed PCS

Interest: Regional Bell Operating Company

Band plan:

- Supports four licensees with 25 MHz each and 40 MHz for unlicensed devices (30-31).

Amount of spectrum per licensed system:

- A minimum of 25 MHz is necessary to assure high quality PCS (i.e., wireline comparable); accommodate an unevenly distributed customer base and roamers; enable provision of innovative services; and facilitate sharing (especially with public safety users that are grandfathered indefinitely) (20-30).

Service areas:

- The FCC should authorize three licenses by MTAs and one license by MSAs/RSAs (4-7).
- MSA/RSA licensing will promote development of low-power microcellular service (4).
- MTAs will reduce licensing burdens; provide larger "home" markets, reducing roaming costs; encourage a relatively large number of participants; reflect the needs of potential users because MTAs are defined by the flow of commerce; reduce transaction costs evident in mobile services generally; create a competitive market; and allow competition with emerging national cellular systems (5-6).
- National licensing is only acceptable if comparative hearings are used (6-7).
- LATA boundaries are not a rational basis for PCS licensing (7-8).

Cellular carrier participation:

- If eligibility limits are placed on cellular carriers, they should not apply at the application stage and cellular carriers should be permitted to divest down to acceptable cross-ownership levels (17-20).

Local exchange carrier participation:

- LECs and cable companies should be equally eligible for new PCS opportunities, since, as OPP notes, the cost saving functions for both are similar; both are subject only to limited competition; and both are rate-regulated; however,

only LECs are common carriers and only LECs must provide access to their facilities (11-16).

Technical standards:

- U S West supports the height/power restrictions in the NPRM because such limits will provide flexibility to offer either high or low power services; permit competition with cellular; allow market determination of the appropriate technical PCS requirements; result in the broadest range of competitive services; and would not violate the requirement to authorize "new" services, since high power systems will support services that are different from what has been authorized (8-10).

UTILITIES TELECOMMUNICATIONS COUNCIL
Reply Comments on 2 GHz Licensed PCS

Interest: National representative on communications matters for nation's electric, gas, water and steam utilities

Band plan:

- Requests that FCC allocate total of 140 MHz of spectrum for PCS; modifies earlier recommendations to suggest 40 MHz for non-commercial allocation; 80 MHz for commercial PCS use; and remaining 20 MHz for unlicensed PCS uses. (p. 32).
- No longer supports access to 10 MHz block for LECs. (p. 32).
- Supports 10 MHz utility set-aside as subset of non-commercial reserve for a limited period of time (at least 10 years). (p. 34).

Amount of spectrum per licensed system:

- Revises earlier proposal to suggest non-commercial allocation of 40 MHz instead of 20 MHz, and recommends only two commercial PCS users with spectrum blocks of 40 MHz, instead of three with blocks of up to 30 MHz each. (pp. 32-38).

Service areas:

- Clarifies that, although UTC opposed nationwide licensing in initial comments, UTC is not opposed to adoption of MCI consortium proposal; MCI approach would fulfill goal of allowing multiple providers to obtain spectrum for service areas which match their needs, resulting in efficient spectrum use. (pp. 38-39).
- Emphasizes that regardless of geographic divisions chosen, total amount of spectrum licensed should not exceed 80 MHz. (p. 39).

Regulatory status:

- States that PCS should be regulated on private carrier basis. (p. 39).
- Supports flexible service concept advocated by Telocator, provided that any PCS spectrum reserved for non-commercial use is regulated on a purely private or private carrier basis (p. 39); specifies that non-commercial PCS spectrum should be used for private

carrier service only if certain benchmarks are met with respect to private internal use. (p. 39 n. 72).

- Regardless of how PCS is regulated, supports federally protected right of interconnection to PSTN at a point of PCS licensee's own choosing. (p. 40).

Technical standards:

- Reiterates that interference standards must protect fixed microwave users and that proposed interference standards are not overly conservative; opposes "loosening" of protection standard as posing unacceptable risk of interference, especially given undefined operating parameters of PCS systems and system architectures. (pp. 2-6).

- Notes that technical proposals for PCS are contingent on final outcome of "spectrum reserve proceeding" in ET Docket No. 92-9; as a result, Commission's decision regarding PCS and 2 GHz interference standards must be consistent with "transition framework" adopted in that proceeding. (pp. 7-8).

- States that TIA is the appropriate standards setting body; all calculations should attempt to provide microwave users with protection on a worst-case basis; FCC should include spectrum sharing techniques in PCS interference calculations, limit number of transmitting mobiles to avoid interference to fixed users, impose emission limits on band edges, and allocate spectrum to PCS in paired multiples of 10 MHz to reduce potential interference and facilitate negotiations. (pp. 7-14).

- States that power and antenna height limits are needed; continues to oppose FCC's proposed 300 foot maximum antenna height as excessive and reiterates that antenna height should be limited to 200 feet above average terrain. (pp. 14-16).

- Asserts that microwave licensees need actual notice of PCS applications. (pp. 16-17).

VANGUARD CELLULAR SYSTEMS, INC.
Reply Comments on 2 GHz Licensed PCS

Interest: Provider of cellular communications services throughout United States

Band plan:

- Reiterates support for licensing of five PCS providers in each PCS market area. (p. 2).

Amount of spectrum per licensed system:

- Continues to advocate allocation of 20 MHz for each service provider. (p. 2).

Service areas:

- Supports MSA/RSA licensing scheme to promote universality and prompt delivery of diverse services. (p. 2).

- Opposes awarding ubiquitous nationwide PCS licenses as not in the public interest; nationwide licenses face formidable logistical obstacles, would benefit large cities and metropolitan areas to the detriment of rural areas, forestall development of PCS, and compromise goal of competitive delivery. (p. 3-9).

Cellular carrier participation:

- Reiterates support for allowing cellular carriers to hold PCS licenses for markets in which they provide cellular service except in case of B block carriers affiliated with a company providing wireline local exchange service in PCS market. (pp. 2-3).

Local exchange carrier participation:

- Supports prohibition on LECs from applying for or acquiring PCS licenses in their local exchange areas, citing history of cellular interconnection and LEC abuse of control over PSTN to detriment of non-wireline carriers; however, would allow LECs to hold PCS licenses in markets in which they do not provide local exchange telephone service. (pp. 9-12, 12 n.5).

Licensing policies:

- In absence of authority to conduct competitive bidding, supports use of lotteries to award PCS authorizations. (p. 3).

Regulatory status:

- Supports level playing field for cellular-PCS competition, to be achieved by liberalizing technical requirements for cellular operators, adopting renewal standards for PCS that parallel those for cellular, and by classifying both cellular and PCS under same regulatory regime as private or common carriers. (p. 3).

Plan for relocation of existing users:

- Recommends adoption of ten-year voluntary negotiation period for relocation of existing 2 GHz fixed microwave users, followed by an involuntary relocation process that will avoid disruption or degradation of existing fixed microwave services. (p. 2).

ALCATEL NETWORK SYSTEMS, INC.
Reply Comments on 2 GHz Unlicensed PCS

Interest: Microwave telecommunications equipment manufacturer and supplier.

Technical standards:

- Contrary to the comments of Northern Telecomm, PCN America and APC, fixed microwave service and PCS cannot cohabitate in the 2 GHz band. (p. 2). Should sharing ever become feasible, then the rationale for relegating 2 GHz fixed users to secondary status will no longer exist. (p. 3).

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AMERICAN PETROLEUM INSTITUTE
Reply Comments on 2 GHz Unlicensed PCS Devices

Interest: National trade association representing companies involved in oil and gas industries.

Band plan:

- There is almost universal agreement that the Commission's proposal to allow unlicensed PCS operations is unworkable because it would create intolerable interference to microwave operations and make it impossible to detect the sources of interference for remediation purposes (15).

Plan for relocating existing users:

- The Commission should require manufacturers selling type-accepted equipment for unlicensed operation to provide funding to cover migration costs. All incumbent migration costs must be covered; this includes engineering and planning costs as well as equipment costs (16, 17-18).

- Commission should consider a transition period of 18 months for microwave licensees in the 1910-1930 MHz band to notify the Commission of their intent to vacate and to request reimbursement before any data-PCS equipment is certified (17).

Technical issues:

- Supports Commission's proposal to modify the TIA 10E standard to take into account the mobile nature of PCS operations. API is concerned that some PCS proponents misunderstand the need for reliability and dependability by supporting interference criteria that reflect microwave system designs engineered for a particular "reliability level" rather than for a fixed fade margin. API does not completely disagree with this approach so long as the reliability level is such to maintain reliability throughout a multi-hop microwave system and an adequate fade margin is engineered for analog paths (4-9).

- Active avoidance techniques, such as space diversity, should not be relied upon until further tested and quantified (9-10).

- Opposes any attempt to insert a factor into the interference analysis for how "critical" the operation of the microwave system may be (10).

- Opposes the use of "statistical models" for calculating path losses for PCS mobile units. Rather, interference calculations must provide "worst case scenario" protection (11-12).

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- For purposes of interference calculations, all potential PCS mobile units planned for operation in a given area must be presumed to be operating simultaneously. In "special events" locations, an extra factor should be entered into the analysis to take into account the high concentration of PCS transmitters in a confined area (12).

- Operations conducted at 1910-1930 MHz should be subject to identical application and coordination procedures and technical limitations as required for other portions of the 1850-1990 MHz band (15).

- To avoid adjacent-channel interference with unlicensed devices, only low power devices should be allowed to operate at the edges of the 1910-1930 MHz band (16).

- Agrees with other commenters that the Commission should adopt uniform technical rules and standards to ensure interoperability (20-21).

AMERITECH
Reply Comments on 2 GHz Unlicensed PCS

Interest: Regional Bell operating company.

Band plan:

- Ameritech's "Two-Tier" proposal (set forth in the opening comments and the reply comments, Attachment A) addresses the concerns of those parties desiring significantly more spectrum for unlicensed devices by allowing the 40 MHz allocated to lower power Tier 2 PCS networks to be used as backbone support for unlicensed devices. (p. 8).

ANDREW CORPORATION
Reply Comments on 2 GHz Unlicensed PCS Devices

Interest: Supplier of electronic communications products and services.

Band plan:

- The comments support Andrew's view that the FCC should allocate, at a minimum, an additional 20 MHz of spectrum for unlicensed PCS for a total of 40 MHz of spectrum. (pp. 3-6)
    - Asks the FCC to change its disparate focus on Global-PCS to the needs and nature of the unlicensed in-building market, as it is likely to be operational prior to deployment of licensed Global-PCS networks.
    - Sufficient clear spectrum is needed to facilitate the concurrent development of high quality, interference-free wireless telephony/low-speed data services and high-speed wireless LANs -- they serve different functions in the business environment and possess different frequency requirements, propagation characteristics, and interference tolerance levels, requiring different equipment and regulatory approaches. (pp. 4-5)

Technical standards:

- Andrew concurs that the technical differences in the nature of voice versus data transmissions requires different technical rules to maximize spectrum efficiency. (p. 7)
- The FCC should address the adoption of a spectrum etiquette, raised by a number of commenters, to minimize interference and facilitate fair access to the unlicensed PCS band. (pp. 8-9)
    - Andrew does not believe the FCC currently has enough information or input to make any decisions about the technical boundaries, administration or enforcement of a spectrum etiquette. (p. 9)

Other issues:

- Urges the FCC to issue a further Notice in this proceeding or initiate a separate proceeding on an expedited basis, to consider: (1) interconnection between Global-PCS and in-building PCS systems; (2) whether the unlicensed band should be divided into voice and data subbands; (3) intersystem roaming; (4) technical interference; (5) frequency coordination; (6) channelization plans; (7) power levels; (8) frequency bandwidths; (9) bit error rates; (10) use of licensed PCS frequencies for unlicensed PCS; and (11) reserve spectrum for use by unlicensed PCS providers. (p. 8)

APPLE COMPUTER, INC.
Reply Comments on 2 GHz Unlicensed PCS Devices

Interest: Manufacturer of Data-PCS equipment.

Band plan:

- Many commenters agree that the FCC must allocate substantially more spectrum to unlicensed technologies; Apple repeats its argument that a total of at least 40 to 65 MHz is need for unlicensed devices. (pp. 2-3).

- Since the FCC issued the NPRM, it has become apparent that many unsuccessful licensed-PCS applicants will attempt to use the unlicensed band. Because workable regulatory limits cannot be placed on use of the unlicensed band, the overall unlicensed allocation should be increased. (pp. 3-4).

- The FCC's band plan proposals for PCS assume that licensed PCS will use frequency division duplexing ("FDD") technology, with transmit and receive channels separated by 80 MHz. Plans based on this technology waste spectrum, make it more difficult to allocate spectrum for unlicensed devices, obstruct interoperability between licensed and unlicensed PCS, and discourage international compatibility among PCS systems. (pp. 7-8).

- Comments in this proceeding have confirmed that licensed PCS will require 40 MHz or more in order to co-exist with microwave users until the band can be cleared for exclusive PCS use. The FCC should focus on creating an effective means of clearing the frequencies, rather than allowing inefficient use of spectrum that could otherwise be allocated to unlicensed PCS. (pp. 7-8).

Plan for relocation of existing users:

- The FCC should adopt Apple's relocation methodology for the clearing of the 1910-1930 MHz band, which calls for movement of incumbent microwave users within the 2 GHz band to achieve more efficient use of the microwave frequencies while, at the same time, making room for PCS technologies. (p. 5).

- The remainder of an expanded unlicensed band should be identified and reserved for unlicensed PCS applications while the clearing of 1910-1930 MHz is taking place. (p. 5).

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Technical standards:

- The comments in this proceeding demonstrate that there is no realistic way unlicensed PCS devices can share frequencies with the fixed microwave services. (pp. 4-5).

ARCH COMMUNICATIONS GROUP, INC.
Reply Comments on 2 GHz Unlicensed PCS

Interest: Paging company; potential 900 MHz narrowband PCS provider; existing 2 GHz microwave licensee.

Plan for relocation of existing users:

- FCC has not fully explored the possibility of permitting incumbent 2 GHz microwave users to retain their channels indefinitely if they elect to devote them to PCS uses. (pp. 13-15).

Other:

- FCC must exhaustively address the health implications of wideband PCS in the Report and Order so that an adequate record is developed in regard to potential health safety issues. (pp. 15-16).